To determine the accuracy of TEDSE for detection of CAD in women in relation to other standard non-invasive tests, we studied 49 women (age 51 ± 10 years, range 33–78) who underwent cardiac catheterization, exercise treadmill test (ETT) and stress thallium scintigraphy (TI) for evaluation of chest pain and suspected CAD. Transesophageal echocardiography was performed using a biplane (13 patients) or an omniplane probe (36 patients), and dobutamine was infused in stepwise increments up to 40 μg/kg/min. Ten women had CAD (≥70% stenosis of ≥1 major coronary artery) and 39 had normal coronary angiograms. During TEDSE, chest pain developed in 8 of 10 (80%) women with CAD and in 31 of the 39 (79%) with normal coronary arteries (p = NS). Of the 10 women with CAD, 7 had ST segment depression during ETT, 8 had reversible TI defects, and 8 developed new or worsening wall motion abnormalities during TEDSE (sensitivity: 70%, 80%, and 80%, respectively; p = NS). Of the 39 women without CAD, 12 had ST segment depression during ETT, 8 had reversible TI defects, and none developed new or worsening wall motion abnormalities during TEDSE (specificity: 69%, 79%, and 100%, respectively; $p < 0.002$). The overall accuracy was 69% for ETT, 80% for TI, and 96% for TEDSE ($p < 0.003$). Thus, TEDSE is an accurate test for detection of CAD among women presenting with chest pain which, by virtue of its high specificity, compares favorably with other standard methods.

910 Valve Surgery

Monday, March 20, 1995, Noon–2:00 p.m.
Ernest N. Morial Convention Center, Hall E
Presentation Hour: Noon–1:00 p.m.

910-16 Ventricular Size and Function Early and Late After Mitral Valve Repair vs Mitral Valve Replacement for Mitral Regurgitation

Detlef Wencker, Jeffrey S. Borer, Clare Hochreiter, Phyllis Supino, Richard B. Devereux, Mary J. Roman, Paul Kligfield. *Cornell Medical Center, New York, NY*

Late postop course of left and right ventricular (LV, RV) size and function after surgical relief of mitral regurgitation (MR) is incompletely defined. Moreover, differences following mitral valve repair (MVr) vs replacement (MVR) have not been fully assessed. Therefore, in 28 pts who had MVR or MVr we determined rest (re) and exercise (ex) ejection fraction (RVEF, LVEF), diastolic and systolic LV dimensions (IDd and IDs, n = 27), fractional shortening (FS), LV endsystolic stress (ESS, n = 25) and contractility (ESS/ESVi, n = 25) preop and 4–7 yrs postop (po): RVEF (re: 37% to 47%; ex: 33% to 47%) and ESS/ESVi (2.1 to 2.5) improved and LVIDd (6.4 cm to 5.5 cm) and FS (36% to 28%) decreased (all $p < 0.01$) while LVEF (re: 52% to 51%; ex: 51% to 55%), and ESS (84 kdyn/cm^2 to 95 kdyn/cm^2) were unchanged (all NS). In a subset of 18 pts (EFre, n = 18, ESS/ESVi, n = 15), additional early (<1 yr) po values were obtained:

	MV-Replacement (n = 11)			MV-Repair (n = 7)		
	preop	early po	late po	preop	early po	late po
LVEFre (%)	50 †	42 NS	44	52 NS	51 NS	53
LVEFex (%)	48 NS	44 NS	48	50 NS	49 NS	55
RVEFre (%)	36 *	43 NS	45	39 *	48 NS	50
RVEFex (%)	34 *	44 *	48	30 NS	46 NS	49
LVIDd (cm)	6.2 *	5.4 NS	5.8	7.3 *	5.4 NS	5.3
FS (%)	33 †	22 NS	25	34 NS	27 NS	28
ESS	80 †	118 NS	109	86 NS	74 NS	81
ESS/ESVi	2.1 NS	2.1 NS	2.1	1.5 *	2.0 NS	2.3

*$p < 0.05$, †$p < 0.005$

We conclude, MVr causes a more rapid and complete restitution of LVEF, FS, ESS and contractility (ESS/ESVi) to preop level than MVR, while RVEF improves rapidly after either.

910-17 The Appropriate Choice of a Cardiac Valve Prosthesis in Elderly Patients

Dennis F. Pupello, Luis N. Bessone, Stephen P. Hiro, Enrique Lopez-Cuenca, M.S. Glatterer, Jr., William W. Angell, John C. Brock, Mark J. Alkire, Edward G. Izzo, G. Sanabria, George Ebra. *St. Joseph's Heart Institute, Tampa, FL*

The long-term durability of the Carpentier-Edwards bioprosthesis in elderly patients exceeds 90% at the end of the first decade. This extensive and long-term experience provides further impetus for the continued use of this valve substitute with these patients. From October 1977 to June 1994, 700 patients 70 years of age and over underwent valve replacement using a Carpentier-Edwards porcine bioprosthesis. Ages ranged from 70 to 93 years with a mean of 75.9 ± 4.2. There were 398 men (56.9%) and 302 women (43.1%). Preoperatively, 98.7% of the patients were in New York Heart Association functional class III or IV. In 74 patients (10.6%) the surgery represented a reoperation. There were 188 (26.9%) isolated aortic valve replacements, 109 (15.6%) isolated mitral valve replacements, and 403 (57.6%) combined procedures which included the replacement of at least one valve. There were 42 (6.0%) double valve replacements in the series. Surgery was performed as an emergency in 42 patients (6.0%). Hospital mortality was 10.1% (71 patients) with 629 hospital survivors. There were 661 valves at risk. Follow-up extended from one month to 15.4 years with a mean of 48.1 months. The cumulative follow-up was 2,518.7 patient-years. A total of six valves failed from structural deterioration, one in the aortic and five in the mitral site ($p < 0.004$). Actuarial freedom from valve structural deterioration at six years was 99.0 ± 0.5% standard error of the mean (SEM; 180 valves at risk) and 93.0 ± 3.5% SEM (eight valves at risk) at 12 years. Gender did not influence structural deterioration; however, valve site did ($p < 0.004$). The results of this large and long-term experience reinforces the continued use of this device in elderly patients. The paucity of valve failures and a demonstrated enhanced quality of life experienced by hospital survivors provides further evidence for the use of the Carpentier-Edwards bioprosthesis in elderly patients with acquired valvular heart disease.

910-18 Aortic Valve Replacement in Patients with Aortic Stenosis and Low Transvalvular Gradient

Heidi M. Connolly, Jae K. Oh, Veronique L. Roger, Thomas A. Orszulak, Sara L. Osborn, David O. Hodge, A. Jamil Tajik. *Mayo Clinic, Rochester, MN*

It has been suggested that patients (pts) with aortic stenosis (AS), LV dysfunction, and mean gradient (MG) <30 mmHg, do not benefit from aortic valve replacement (AVR) and hence should not be offered surgery. Since prognosis without operation is dismal, we reviewed our experience and describe the outcome of 29 consecutive pts with MG <30 mmHg and EF ≤35% who underwent AVR between 1985 and 1992; (20 M:9 F, mean age 70 ± 12 yrs). Ninety percent (26/29) of pts were severely symptomatic (NYHA Class III or IV).

Preoperative hemodynamics demonstrated the following mean values: EF 24 ± 7%, MG 23 ± 4 mmHg, aortic valve area 0.7 ± 0.2 cm^2, cardiac output 3.4 ± 1.1 L/min, and peak Doppler aortic velocity 3.3 ± 0.4 m/sec. Coronary artery disease (CAD) (≥2 vessel CAD or left main) was present in 16 pts (55%), 13/29 (45%) had prior MI (2 prior CABG). Coronary bypass at the time of AVR was performed in 17 pts.

The in-hospital mortality was 24% (7/29). One and 5-year survival was 63% and 40% respectively, at a median follow-up of 1 yr, (up to 7 yrs). The presence of substantial CAD was similar among pts who survived or died perioperatively. Mean age of surgical survivors was 68 ± 13 yrs vs 78 ± 5 yrs for pts who died in the perioperative period ($p = 0.059$). Clinical follow-up was available in 19/22 survivors, 15 of whom improved ≥1 NYHA Class. Eleven pts were asymptomatic (NYHA Class I) and 5 were Class II at follow-up. Postop EF in 19 survivors had improved, mean postop EF 35 ± 14%.

Conclusion: (1) Pts with AS, LV systolic dysfunction and MG < 30 mmHg represent a high risk subset; (2) these pts have an increased operative mortality (24%); (3) however, EF and symptomatic improvement occurs in the majority of survivors. Based on this experience we conclude that pts with AS, reduced LVEF and low MG should not be denied AVR.

910-19 Echocardiographic Assessment of 148 Young Surviving Patients with Mitral Valve Repair for Rheumatic Mitral Regurgitation: Long-term Observations

John Skoularigis, Vania Sinovich, Pinhas Sareli. *Baragwanath Hospital, Johannesburg, South Africa*

Detailed echocardiographic assessment of the structural and functional status of mitral (M) valve (V) post MV repair for rheumatic M regurgitation (R) has not been done previously. We followed-up (mean 5 ± 3 years, range 0.1–11) 254 patients with MV repair (72% pure MR and 28% with associated mild commissural fusion (MCF), mean age 18 ± 9 years) and report on the echo-Doppler findings in 148 survivors without reoperation. Anterior M leaflet prolapse was present in 37% and retraction in 38%. Severe leaflet thickening was present in 60% and calcification in 50%. Other findings according to initial MV lesion: